

These farmers have also realized the potential of fresh vegetable pigeonpea in the domestic market. The pigeonpea matures when food reserves are low, making it a popular crop to stave off hunger. Thanks to this high local demand, most of the pigeonpea grown is now being sold as green peas at prices almost twice that of the dry grain.

The commercialization of pigeonpea is allowing farmers to own valuable assets ranging from mobile

phones to productive land and livestock, and is opening viable pathways to move out of poverty. Several farmers have invested in small ruminants, milking cows and bullocks, helping them expand income sources, reduce vulnerability and mechanize production. This has also increased school enrolment as families can now afford to send more children to school. The increased income also allows families to improve food security and increase expenditure on other basic needs to improve the quality of life.

### Conclusion

The commercialization of pigeonpea in the eastern African countries has had a large impact on the livelihoods of smallholder farmers. The ICRISAT-improved varieties are high-yielding, fusarium wilt resistant, large-seeded and of the much sought-after creamy color. These factors have played a major role in the success of this crop. ICRISAT gratefully acknowledges the generous support of its partners in these countries – Ilonga Research Station, SARI, KARI and the Tanzanian Department of Research and Development – without which it would have been impossible to promote pigeonpea among the farmers and consumers of eastern Africa.



Researchers are very pleased with the success of pigeonpea variety ICEAR 00040.

## About ICRISAT



Science with a human face

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT's mission is to help empower 644 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT belongs to the Alliance of Centers of the Consultative Group on International Agricultural Research (CGIAR).

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# Pigeonpea in Eastern and Southern Africa

*High-yielding, wilt-resistant, large-seeded varieties increase farm incomes*



INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS  
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## Introduction

Pigeonpea (*Cajanus cajan*) is one of the most important food crops grown in eastern and southern Africa. Farmers love this crop for many reasons – tolerance to drought, important source of protein for the family, vital source of scarce cash, and provider of fodder for livestock. Pigeonpea fixes soil nitrogen, allowing the poor farmers to improve soil fertility without expensive chemical fertilizers. Farmers have evolved elaborate intercropping systems allowing them to plant pigeonpeas with maize, sorghum and other cereals making it highly suited to semi-arid, low soil fertility areas.

African farmers have not been able to fully exploit the potential of pigeonpea because: (a) local varieties are low yielding and susceptible to pests and disease; (b) some of the available varieties were small-seeded and did not meet market requirements; (c) market linkages for dryland farmers are largely underdeveloped; and (d) available market and farmer-preferred varieties did not reach farmers due to poor input and technology delivery systems.

These factors have made it difficult for African smallholders to benefit from the sizable export market. India alone imports over 254,000 tons of pigeonpea per year, but Africa supplies less than 5% of this demand. There are similar high value niche



Farmers in Kenya harvest both mature and green peas for the market.



A meal primarily made with green pigeonpea.

markets for exporting to European and American markets. Meanwhile, the domestic demand for pigeonpea has been growing substantially over the last few years, increasing the wholesale prices where overall production is limited.

ICRISAT and partners have been working to develop suitable varieties and institutional innovations to help African dryland farmers benefit from the crop. This began with the development of large-seeded, cream colored and fusarium wilt resistant varieties, and partnerships with the private and public sector institutions to address constraints in output marketing and utilization. This has catalyzed a process of livelihood transformation for many dryland farmers in Kenya, Malawi, Mozambique, Tanzania and Uganda. The increasing availability of improved varieties along with institutional innovations enables farmers to reduce the costs of product marketing, spurring commercialization of the crop.

## Teaming up with Tanzania

ICRISAT has a long and fruitful collaboration with Ilonga Research Station in Kilosa for breeding and the Selian Agricultural Research Institute (SARI) in Arusha that covers the Northern Zone of Tanzania. Here, improved varieties like ICEAP 00040 and ICEAP 00053 are becoming very popular. In Babati District – famous for quality pigeonpea production – adoption levels have reached 60% and pigeonpea alone contributes more than 50% of



Pigeonpea is now a familiar commodity in Tanzanian markets.

the cash incomes for smallholder farmers. Realizing the huge demand for improved seeds, local agro-dealers (called agrovets) contract trained farmers to grow high quality seeds with the support of the extension system in training and organizing farmers. The produce is marketed through producer marketing groups (PMGs) that allow smallholders to benefit from collective action.

When ICRISAT and SARI started working together in Babati and Karatu in the mid-1990s, these areas were little more than a few scattered buildings along a single dusty street. Today both towns are electrified, the road has been paved and everywhere there are signs of prosperity driven by agricultural commerce. Outside Babati the whole landscape is covered in flowering and podding pigeonpeas that have taken over the land earlier planted to maize and beans. Pigeonpea is a high value crop that is exported to Kenya, India and Europe from Tanzania.

Arumeru, Babati, Karatu and Kondoa Districts are famed for their production of bold cream-colored pigeonpeas. Fifteen years ago, there was hardly any pigeonpea grown in Arumeru District, but through collaboration between SARI and ICRISAT, pigeonpea is now everywhere.

It is apparent that ICRISAT-developed varieties dominate the fields. Twelve years ago the idea of consuming the crop was somewhat preposterous, but the introduction of palatable ICEAP 00040 and ICEAP 00053 have changed all that!

Pigeonpea consumption has taken off as the bean crop has largely succumbed to pests and the changing weather patterns that the hardy pigeonpea takes in its stride.

ICRISAT-bred varieties have had huge impacts in this heartland of pigeonpea. This has been possible because of the committed partnership of Tanzania's Department of Research and Development, and SARI.

## The Kenyan Connection

In Kenya, an ICRISAT-led consortium ignited the pigeonpea revolution that brought together parties like TechnoServe, Catholic Relief Services (CRS), Kenya Agricultural Research Institute (KARI) and private sector processors and exporters. Successive projects for legume commercialization stimulated local seed production and agro-dealer networks for distribution and marketing. The PMGs facilitated community seed production, local distribution and market access, and managed to increase local producer prices by 20-25% in Nairobi and Mombassa after linking to wholesalers.

This is making tangible gains for poor farmers in these areas where maize has traditionally been the main crop for a long time. Unfortunately, the maize crop fails in three out of five years, leaving families to rely on pigeonpea – widely considered as a lifesaver and guarantor of livelihoods in these drought-prone areas.

The main revolution came about through introduction of medium-duration varieties that give two crops a year. The first improved varieties reached farmers of Emali village (Makueni district, Kenya) around 2003 through field days held at the ICRISAT/KARI research station in Kiboko. Enterprising women farmers took the lead in demonstrating the pigeonpea technology and proudly call it "our dryland coffee!". They also call it "our beef", alluding to its high protein content.



Pigeonpea is a lifesaver when the maize crop fails.